INON

High accuracy S-TTL AUTO
Underwater Strobe

S-TTL Strobe

http://www.inon.jp

Digital Camera Fully Compatible, Newly Developed S-TTL System

「S-TTL」enables TTL auto shooting by an external strobe for a digital SLR camera as well as for a point & shoot digital camera.
INON S-TTL auto strobe supports any manufactures' model providing highly accurate exposure control.

Film camera era without strobe selection problem

TTL stands for「Through The Lens」and TTL auto strobe system controls flash amount to provide correct exposure based on calculation by camera's internal sensor metering reflecting strobe light from a subject through the lens. This TTL system meters actual light amount reflecting from a subject providing accurate exposure.

When we start with the history of underwater TTL auto strobe, underwater camera「NIKONOS V」released in 1984 was the first to provide automatic TTL flash control for underwater strobe SB-102, SB-103 succeeded by NIKONOS V compatible underwater strobes form other manufactures. The 5 pin electrical sync connector for NIKONOS V is most popular and widely adopted to connect an underwater strobe and underwater film camera (underwater camera/housing).

A film SLR camera has flexibility to select an underwater strobe. As far as housing has NIKONOS type electrical sync connector and properly wired, automatic TTL flash control is usable with any TTL auto strobe like Nikon SB-105, INON Z-220, Z-22 connected via electrical sync cable.

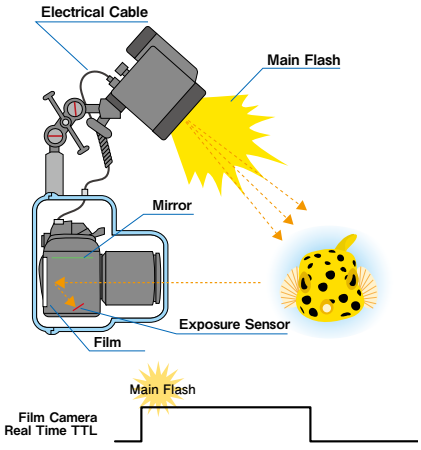
NIKONOS type 5 pin electrical sync connector and NIKONOS V with INON Z-22 strobe

Film camera compatible strobe is not usable for a digital camera!?

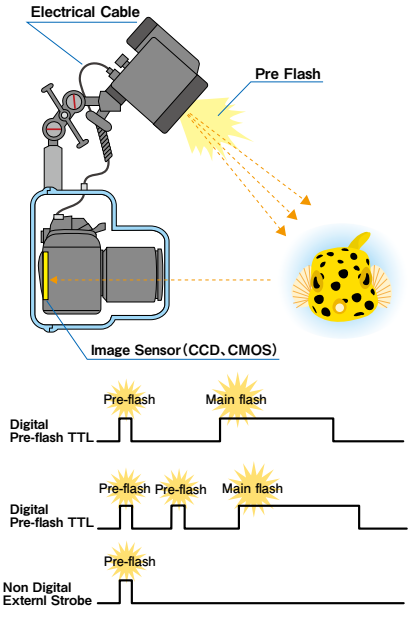
Underwater TTL strobe circumstances have been drastically altered with the spread of digital camera among divers. Some underwater housing for digital SLR camera has NIKONOS type electrical 5 pin sync connector as same as film camera housing. Since the housing has same NIKONOS type sync connector, existing film camera compatible underwater strobe has been considered compatible with a digital SLR camera via 5 pin sync cable but happened to experience error message on the digital camera or blackout on an image even the strobe worked. Why this happened? This is because automatic TTL strobe system difference between a film camera and a digital camera.

The film TTL auto system makes single flash while digital TTL auto system employs pre-flash type making two to three flashes. Film TTL auto strobe system starts firing at the same time the shutter opens and reflecting strobe light from a subject is received at a film. The reflecting light on the film is metered by the sensor to determine when to cease firing for correct exposure. This process takes only about 1/1000 second. In contrast, digital TTL auto strobe system can not calculate adequate exposure based on reflecting light from a subject since image sensor (CCD/CMOS) reflectivity is comparably low comparing to a film. So digital TTL strobe system gives preliminary flash for very short period of time (pre-flash) just before the shutter opens metering reflecting light from a subject by the sensor to calculate necessary amount of light for correct exposure and starts emitting main flash at the same time the shutter opens. Canon E-TTL and Nikon i-TTL employs this system.

When we connect conventional film camera compatible TTL strobe to pre-flash type digital SLR via sync cable, the strobe makes full dump by pre-flash signal then the shutter opens before the strobe has been fully charged resulting in quite under exposed image only with ambient light. Even two time flash compatible strobe like INON Z-220 strobe, does not fully support a digital TTL and force to use Manual flash mode.



Film SLR:
A strobe starts firing at the same time the shutter opens and quenches firing when correct exposure has been obtained.



A film compatible TTL strobe connected to a pre-flash type digital SLR via electrical cable flashes does not support TTL auto exposure resulting in synchronization only with first pre-flash or totally uncontrollable.

The birth of digital fully compatible S-TTL

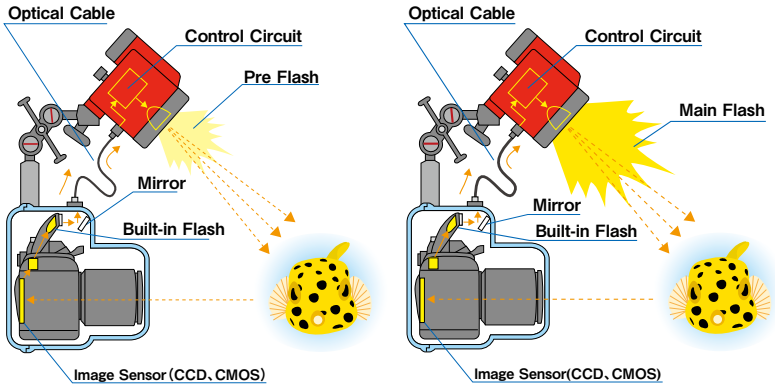
A film camera seems to depend more on photographer's skill, experience and feel since the camera does not allow checking images on site. A digital camera allows us to check images right after shooting and enable to try to shoot again as much as we like. And high capacity memory card further allows to shoot hundreds of images. The digital camera makes entry level of underwater photography getting down and nowadays more people buy a digital SLR camera and underwater housing even they have just started underwater photography. However underwater photography gets more difficult because underwater strobe does not work in TTL auto.

INON is among the first to support digital TTL auto system with「S-TTL」auto mode equipped D-2000 strobe and Z-240 strobe.

The proper name of S-TTL is「Optical Synch TTL」. S-TTL enables to perform in TTL auto exposure as same as genuine TTL strobe from camera manufacture, based on camera's built-in flash light to use as a signal to be transmitted to a strobe. S-TTL uses digital camera's built-in flash light not as a light source but as like a controller to trigger S-TTL strobe.

The built-in flash of a digital camera makes weak flash (pre-flash) before main-flash to calculate exposure. This pre-flash is transmitted to S-TTL strobe to control the strobe to make pre-flash to a subject. The reflecting light from the subject goes through the camera's master lens to an image sensor then a processor calculates main flash light amount for correct exposure. Finally the built-in flash makes main-flash which is transmitted to the S-TTL strobe to cause main-flash of the S-TTL strobe.

S-TTL auto compatible INON D-2000 strobe and Z-240 strobe works in TTL auto mode by simply setting their main dial to S-TTL position.



Digital camera's built-in flash lights are transmitted via an optical fiber to the S-TTL strobe to make pre-flash and main-flash instead of the built-in flash.

Highly versatile S-TTL

This S-TTL auto system is compatible with any make, model, shooting mode regardless of a compact digital camera or a digital SLR camera as far as a camera is pre-flash type. Since S-TTL works based on optical signal, theoretically there is no limitation on number of strobe to use as long as they are connected via optical fibers.

INON S-TTL strobe also supports explosively sold transparent housing among divers with simple and reliable external strobe shooting only by pressing the shutter release button. INON has released number of「Mount Base」and「Optical D Cable Type L/Cap Set」products to attach a conversion lens and an optical cable on compact digital cameras continuously released from camera manufactures; Canon, Olympus, Sony, Nikon, Fujifilm, Panasonic, etc. INON now supports more than 90 different camera models and will successively provides compatible products for latest models.

INON system has so called Clear Photo Film to stick on built-in flash surface to change visible light to invisible infrared ray to prevent built-in flash light to leak not causing backscatter or exposing suspended particles in an image.

Since S-TTL strobe requires digital camera's built-in flash as control signal, a digital camera without built-in flash like Canon EOS 5D or Nikon D3 can not use S-TTL auto function. Even a digital camera with built-in flash, S-TTL strobe does not properly work if a housing does not allow the camera to pop-up its built-in flash or does not have structure to transmit built-in flash light to an optical fiber. So it is important to check if S-TTL is usable when you select a camera and an underwater housing.

INON S-TTL strobe works for TTL auto shooting with any pre-flash type digital camera system as far as they make flash underwater, you can use same S-TTL strobe even you change your camera/housing. An optical fiber is free to unplug/plug underwater enabling S-TTL strobe to be shared among two cameras. INON S-TTL system would be ideal control technique for underwater strobe with its broad versatility and reliable exposure even for multiple strobe system.

4 x Z-240 strobes connected to INON X-2 housing via optical cables.

Clear Photo System

Wide range of Mount Base products and Optical D Cable Type L/Cap Set products support each different digital cameras.

Fine Tune for Desired Exposure and Shadow Control with Dual Strobe

INON「S-TTL」supports sophisticated and creative lighting including fine exposure adjustment to suit to personal preference or control density of subject shadow in dual strobe configuration using「External Auto」operating strobe.

Improved usability beyond existing underwater TTL auto strobe

"S-TTL" Auto of INON Z-240/D-2000/S-2000 is not just to work out "full automatic strobe shooting" with point and shoot digital camera.

・Flash output can be finely adjusted even in underwater TTL Auto circumstance for desired exposure depending on preference.

・Three dimensional appearance can be obtained by adjusting flash output balance between both ends strobes to control shadows under dual strobe configuration.

INON S-TTL Auto strobes enable you to have above unique advantages by simply clicking control dial, which was impossible with existing underwater TTL auto strobe. INON Z-240/D-2000/S-2000 realize your high sensitivity that can not be satisfied with existing underwater TTL Auto strobe.

INON Z-240 Type4

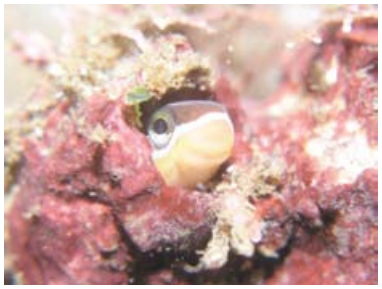
INON D-2000 Type4

Fine and creative flash output tune for desired exposure even in TTL AUTO Flash output compensation using「EV. Control Switch」in "S-TTL" Auto mode

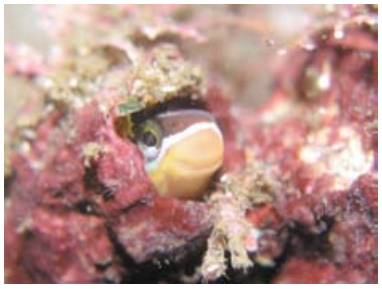
It will get hard to express one's image with existing underwater TTL auto strobe when a user gains experience of underwater photography. This is because that desired exposure is vary by each photographer's sensitivity and appropriate exposure is also vary depending on shooting condition like subject color etc.

"S-TTL" of Z-240/D-2000/S-2000 enables handy fine flash output adjustment of based on desired exposure or appropriate exposure which may vary depending on shooting condition. Manually controllable「EV Control Switch」enables you to select "real" appropriate exposure by simply dialing the switch.

【Bit brighter】
EV.Control Switch:A



【Standard position】
EV.Control Switch:B



【Bit dark】
EV.Control Switch:C

【Rather dark】
EV.Control Switch:C-

■Sample data
・Set D-2000 to『"S-TTL" Auto Mode』and set「EV. Control Switch」to『B』【standard position】.
・Compare different setting of『A』for【Bit brighter】,『C』for【Bit dark】and『C-』for【Rather dark】, then select "real" appropriate exposure setting.

■Note
・Actual exposure may be different from the sample depending on camera/shooting condition/shooting parameters (aperture, distance to subject etc.) though setting「EV. Control Switch」to『B』.

■Equipments
・Camera/housing : C-5050Z / PT-015
・Strobe : D-2000 x 2 (both strobe set to "S-TTL" Auto)
・Attachment lens : UCL-165M67 x2

■Photo data / subject
・Camera setting : f2.6 at 1/1000, ISO100, Telephoto end, Macro Mode ON
・Subject : Piano blenny (face size : approx.1.5cm/0.6in. width)
Distance to subject : approx. 5cm/2in.
Location : Fukuura Kanagawa, Japan
Photo by Ryo Hattori

Accentuate three dimensional appearance with dual strobe
Advanced application of "S-TTL" Auto to control shadow of a subject

It was impossible for existing underwater TTL auto strobe to intentionally make asymmetric lighting under dual strobe configuration and only "flat" lighting was available.

However, with INON unique technology it is easy to control darkness of shadow by setting Z-240/D-2000/S-2000 to『S-TTL Auto』and another D-2000 series, D-180 series or Z-240 to『External Auto』.

When using D-2000 series x2 or Z-240 x2, 『S-TTL Auto』side and『External Auto』side can be instantly switched over by dialing control knob enabling you to control not only darkness of shadow but can select which side of a subject you have shadow.

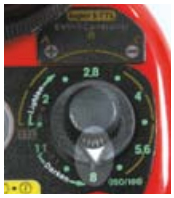
The function to control shadow under dual TTL auto strobe used to be only possible with high-end SLR camera system on land.

Configure another D-2000 series/D-180 series/Z-240 as External Auto operating strobe.

【Flat lighting, bit overexposed】

"S-TTL"Auto side
EV.Control Switch:B
(select position at correct exposure)

External Auto side
Aperture:f8.0



【Soft shadow】

"S-TTL"Auto side
EV.Control Switch:B
(select position at correct exposure)

External Auto side
Aperture:f5.6

【Normal shadow】

"S-TTL"Auto side
EV.Control Switch:B
(select position at correct exposure)

External Auto side
Aperture:f4.0

【Dark shadow】

"S-TTL"Auto side
EV.Control Switch:B
(select position at correct exposure)

External Auto side
Aperture:f2.8

■Sample Data

・Set『S-TTL Auto Mode』in the opposite side (『Left』side in this sample) of D-2000 to shadow side (『Right』side in this sample) .
・Set base exposure position (『B』in this sample) with「EV. Control Switch」.
・Set the other D-2000 to『External Auto Mode』and select same aperture value as camera's setting on EV. Control Switch (select『f5.6』corresponding to camera's setting in this sample).
With above setting, base lighting is obtained (【soft shadow】in this case).
・Change aperture setting of the D-2000 (as External Auto Strobe) and take shots;『f8』for【flat lighting, bit overexposed】,『f4』for【normal shadow】and『f2.8』for【dark shadow】.
・In the case 2x D-2000 series or 2x Z-240, you can instantly switch over『S-TTL Auto』side and『External Auto』to have a shadow on the other side of the subject.

■Note

・It is necessary to connect underwater housing and each strobe directly by specific『Optical D Cable/Cap Set 』and『Optical D Cable 』as shown image right.
・Standard position of「EV. Control Switch」for appropriate exposure may be differ from position『B』depending on camera, shooting condition or camera setting (such as distance to subject, aperture setting etc.)
・External Auto compatible D-2000 series, D-180 series and Z-240 can be used as a second strobe. When using different strobe model as a second strobe, it may be necessary to step down (D-180 series) / step up (Z-240) aperture setting on the strobe over camera's aperture setting since flash system of D-180 series /Z-240 is different from the system of D-2000 series (1st strobe).
・It is possible to select Manual mode on the strobe not to be used as "S-TTL" Auto strobe. In this case, total light amount is adequately controlled by the S-TTL operating strobe within "S-TTL" Auto exposure range. Make sure to set Advanced Cancel Circuit to『ON』regardless of using External Auto/Manual.
・A camera which allows to fix aperture setting and ISO sensitivity, is desirable to use second strobe in External Auto or Manual.

■Equipments

・Camera/housing : C-5050Z / PT-015
・Strobe : D-2000 x 2 (one in "S-TTL" Auto mode and the other in External Auto mode)
・Attachment lens : UWL-100 Achromat Wide Conversion Lens Type 2 + Dome Lens Unit for UWL-100

■Photo Data/Subject

・Camera setting : f5.6 at 1/1000, ISO100, telephoto end with Macro mode ON
・Subject : Cat shark (Length : approx.30cm/11.8in.) Distance to subject : approx.20cm/7.9in.

Location : Fukuura Kanagawa, Japan, Photo by Ryo Hattori

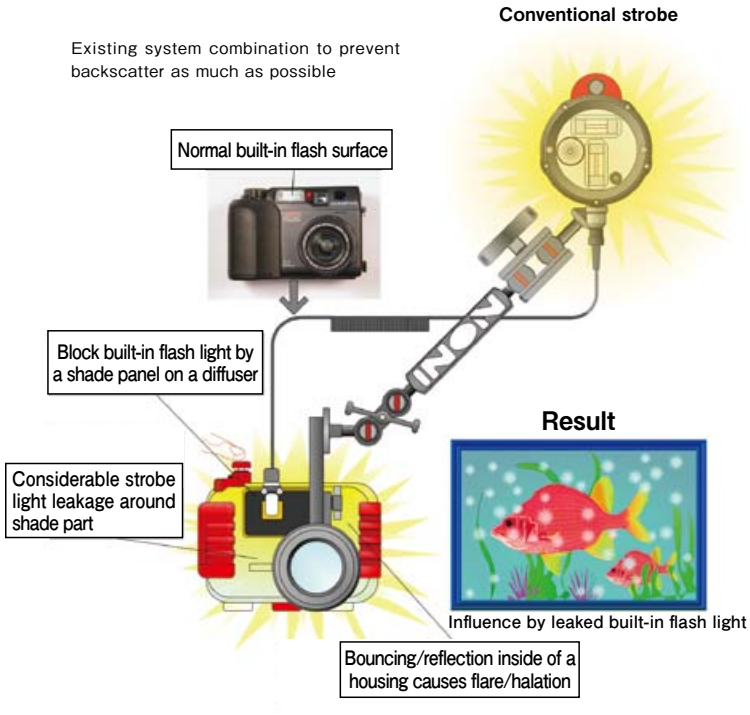
Clear Photo System for Sharp Image

Built-in flash light leaking from a transparent housing sometime cause 「backscatter」 caused by reflection of suspended particles or 「ghosting」 inside of a lens. INON Clear Photo System has successfully resolved these drawbacks.

Conventional strobe system exposing suspended particles even with angled external strobe light

A standard transparent underwater housing body itself shines even we shade its diffuser panel with a black tape and leaking light bounces off suspended particles in front of a lens causing backscatter. This is why we have been disappointed with blurred image and suspended particles exposed in an image even using an external strobe to take clear image. We will have more significant backscatter if we do not arrange shade for transparent underwater housing to use built-in flash. Even using an external strobe, its effect to get three-dimensional appearance will reduce half.

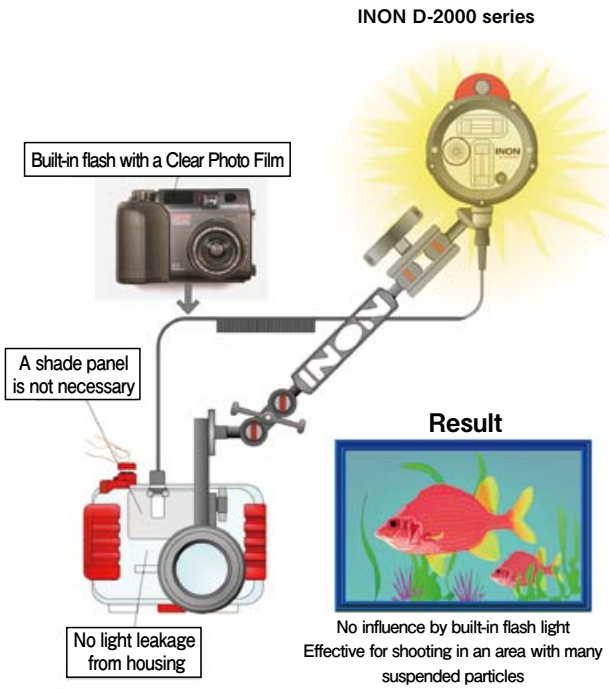
A camera system without Clear Photo System has "backscatter" exposing bouncing built-in flash light from suspended particles.


Conventional strobe
Existing system combination to prevent backscatter as much as possible
Normal built-in flash surface
Block built-in flash light by a shade panel on a diffuser
Considerable strobe light leakage around shade part
Result
Influence by leaked built-in flash light
Bouncing/reflection inside of a housing causes flare/halation

「Clear Photo System」 promises you clear digital image with a strobe underwater

The Clear Photo System consists of a Clear Photo Film stuck over digital camera's built-in flash surface to block visible light. Since built-in flash light is not leaked from a housing, we can shoot a subject with angled external strobe light only to get clear underwater image. Off course it is not necessary to attach a tape on a diffuser or housing itself to block light.

A camera system with 「Clear Photo System」 blocking visible light provides clear image without any reflection from suspended particles.


INON D-2000 series
Built-in flash with a Clear Photo Film
A shade panel is not necessary
Result
No light leakage from housing
No influence by built-in flash light
Effective for shooting in an area with many suspended particles

*Clear Photo System compatible strobes besides INON D-2000 are; Z-240, S-2000, D-2000S, D-2000W/Wn, D-180 series and Z-220 series.
*Clear Photo Films are included in Optical D Cable/Cap Set.
*Schematic diagrams for explanation and may not the case.
*Strobe flashing shows main flash in sync with camera's main flash
*The Clear Photo System is patented in the U.S.(No.6,704,500) and PAT. P in Japan.

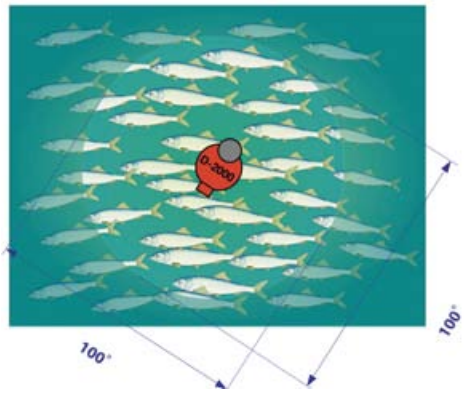
100° Circular Beam Angle with T-shape Twin Flash

D-2000 and other Inon compact strobes[*1] have two discharge tubes in "T" configuration and unique reflecting mirrors[*2] to provide 100° circular beam angle.

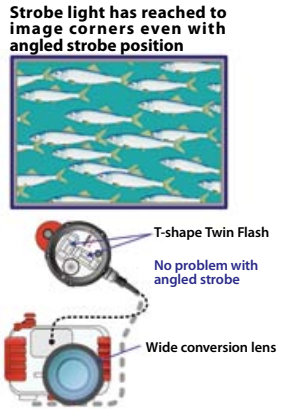
INON D-2000 equipping T-shape Twin Flash

Each reflecting mirror in T-shape configuration generates synergy effect providing 100 degree circular beam all around enabling free and flexible strobe position without considering camera's view angle. Together with INON arm system supporting free strobe position, the T-shape Twin Flash supports free and creative lighting even in wide shooting.

INON D-2000 equipping T-shape Twin Flash



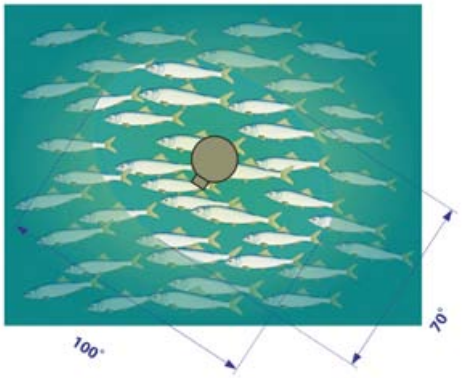
Result image


Strobe light has reached to image corners even with angled strobe position
T-shape Twin Flash
No problem with angled strobe
Wide conversion lens

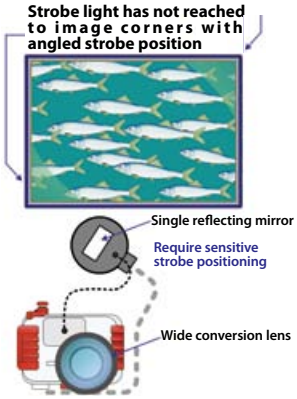
Conventional strobe with single reflecting mirror

A strobe with single reflecting mirror type has rectangular reflecting mirror emitting oval beam creating blind corners if the strobe is not properly aligned with a camera. So strobe position has to be rather limited to evenly cover all image area even using an arm system allowing free strobe position.

Strobe with single reflecting mirror at 45 degree Camera on the level



Result image


Strobe light has not reached to image corners with angled strobe position
Single reflecting mirror
Require sensitive strobe positioning
Wide conversion lens

T-shape Twin Flash creating soft shadow

Larger light emitting area of two reflecting mirrors, together with T-shape configuration design, create less and soft shadow.
Attaching diffuser in combination with T-shape Twin Flash prevents washout.

D-2000

Other manufacture's single reflector type strobe

Conventional single reflector type strobe has smaller light emitting area creating sharp shadow.
(Above samples are simulated images on land)

*1 T-shape Twin Flash is also used for other INON strobe; D2000S, D-2000W/Wn, Z-240, Z-220 series and D-180 series.
*2 T-shape Twin Flash is patented in the U.S. (No.6,518,714) and patent pending (February 2000) in Japan.
* Above illustrations are schematic diagram for explanation purpose and may different from actual situation.

High-intensity 180 lumen power LED equipping, wireless TTL compatibility

2 Way (Optical / Electrical) Connection Compatible High performance, Multifunctional and High-end Underwater Strobe

Ultra Multimode
Z-240 Type4

(FULL SIZE)

The INON「Z-240」carrying overwhelming high-performance in its compact body has further refined and evolved with upgraded 180 lumen high intensity LED light and next generation wireless TTL function. The combination with a digital SLR camera system supports professional photographers with powerful flash and unparalleled features.

PAT Patented in the U.S. and in Japan
JP.PAT. Patented in Japan and patent pending in the U.S
US.PAT. Patented in the U.S.

High power with Guide Number 24, wide 100° circular beam angle light distribution even without a diffuser

INON「Z-240」produces powerful guide number『24』*1 and 『circular 100°』*2 coverage without a diffuser thanks to INON unique "T-shape Twin Flash" construction PAT and optimally designed reflecting mirror/prism supporting effective light distribution even with 4AA battery operation. This circular light distribution supports your creative and free strobe positioning with strobe arm(s) without vignetting of flash light.

Advantage of powerful flash output when using high-speed X synch camera

The Z-240 emits strong flash in very short period of time which solves conventional high power strobe's weak point and no power loss will happen even in fast shutter speed. In fast shutter speed, its effective power output increases at more than『approx.30%』which is『approx.60%』(when shutter speed is 1/250 sec.) and『approx.90%』(1/500 sec.) comparing to Z-220 strobe. The Z-240 supplies enough power for digital/film SLR shooters in particular shooting situation using faster shutter speed and smaller aperture setting.

Minimum recycle time of 1.6 seconds, compact body

Compact body size of the Z-240 is 99mm(outer diameter)/100mm(depth)/122mm(height)*3 but its recycle time is minimum『approx. 1.6 sec.』at full flash*4. The Z-240 unique circuit components carries two sets of fundamental electrical parts (transformer: 2pcs, transistor: 4pcs) to achieve fastest recycle time in the class PAT .

Optical/electrical connection compatible, Carrying all well-established features of『D-2000』series

As a prosumer model, the「Z-240」is equipped with Nikonos 5 pin sync connector to connect to a conventional camera system with "electrical cable" as well as "Optical D Cable connection" compatible connecting to digital camera's built-in flash to benefit all advanced features of『D-2000』series including「"S-TTL" Auto」JP.PAT. mode*5 for TTL auto shooting and "Clear Photo System"US.PAT. compatibility. Off course you can plug the「Z-240」to compact digital camera (transparent housing) via "Optical D Cable" for fully automatic shooting with its "S-TTL" auto mode. The highly accurate S-TTL Auto shooting accommodates with Nikon D700/D300/D200/D90/D80 which emits either single or double pre-flash. The「Z-240」supports a number of different equipment combination including upgrading your system.

Next generation wireless TTL

The Z-240 "Type 4" successfully amplifies receiving optical signal from the slave sensor 20 times more comparing to previous Z-240 "Type 3" to provide「wireless S-TTL Auto mode」without using an optical cable. With optional『Wireless Connection Kit』,「Z-240 "Type 4"」supports 2 way (wired/wireless) S-TTL Auto mode.

13 step Manual / 24 step External Auto

The Z-240 supports professional needs for sophisticated lighting by its 13 step「Manual mode」with 1/2EV increments and by 24 step「External Auto」mode with 1/4EV increments which is available for digital SLR camera under electrical cable connection. The Z-240 gives you free and creative lighting. INON unique "Advanced Cancel Circuit" benefits you with shorter recycle time (1/3) and 20% more images per battery set comparing to an external strobe carrying conventional cancel circuit*6.

High-intensity 180 lumen power LED multifunctional Focus Light with shutter linked auto OFF function

Multifunctional Focus Light US.PAT. for strobe aiming and supporting focusing as well as indicator of strobe charge status making it work in synch with strobe's ready LED lamp. The Z-240 "Type 4" uses high-intensity 180 lumen power LED as Focus Light. The unparalleled brightness of the Focus Light is also usable as an independent diving light producing 180 lumen/20° coverage.
The Focus Light operation is manually controlled by the Focus Light switch even using electrical connection to select among different Focus Light mode as you like depending on shooting circumstances. The Focus Light automatically turns OFF in synch with shutter release in any connection method. The Focus Light starts to stop emitting light at the time of "pre-flash" under "Optical D Cable Connection" with a pre-flash type digital camera, so it never recorded in an image*7.

Z-240 Type4 back

*1 Measurement in Air/ISO100･m, Nominal value
*2 100°circular beam angle without diffuser. 110° circular beam angle with supplied -0.5/-1.5 diffuser.
*3 Excluding protruded parts
*4 With SANYO Twiicell 2700 Series, HR-3UTG, 1.2V, Min.2,500mAh. Recycle Time / Flash Capacity based on INON test data. Actual values may vary depending on battery manufacturer, battery type and age.
*5 Usable function may vary depending on camera system and connection method
*6 Recycle time and available number of images per battery set varies depending on camera model and setting.
*7 Focus Light may be recorded on an image depending on camera system, connection method and shooting condition.

High-intensity 180 lumen power LED equipping, wireless TTL compatibility

Next Generation High Functionality for Digital Year Underwater Strobe for Professional Use

Ultra Multimode
D-2000 Type4

(FULL SIZE)

Popular-priced model solely use for Optical D Cable connection carrying high performance and multiple functions. Equipped with S-TTL auto mode to support exceptionally accurate TTL auto shooting. 13 step Manual mode and 24 step External Auto mode for sophisticated lighting needs. The D-2000 serves you with rich features including guide number 20, 100° circular beam angle without a diffuser and high-intensity 180 lumen power LED Focus Light.

Precise "S-TTL" mode working with any manufactures' camera

Time proven technology as TTL auto shooting with an external strobe, highly accurate S-TTL auto mode equipping to support high-end digital camera as well as point & shoot digital camera (transparent housing) for simple shooting style without complicated aperture setting.
INON S-TTL auto works with any camera manufactures' model. You do not have to buy new strobe when you upgrade from point & shoot digital camera to other manufacture's high-end digital camera.

Fine adjustment to match with your taste even in TTL shooting

"S-TTL" Auto mode provides great usability beyond traditional TTL with its fine flash output adjustment to suits to your "real(preferable)" correct exposure or to compensate slightly different exposure program among different camera model/unit.

Next generation wireless TTL

The D-2000 Type4 successfully amplifies receiving optical signal from the slave sensor 20 times more comparing to previous D-2000 "Type3" to provide wireless S-TTL Auto mode without using a fiber optics. With optional「Wireless Connection Kit」, D-2000 "Type4" supports 2 way (wired/wireless) S-TTL Auto mode.

Supports professional needs

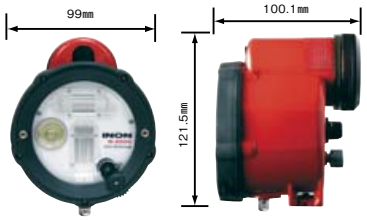
24 step External Auto mode compatible to support sophisticated lighting like shadow control with dual strobe by fine adjustment of flash output.
13 step Manual flash output setting the most in its class with 1/2 EV increments supporting professional lighting.
Conventional TTL exposure control is also supported for film camera system*1.

Powerful G.N.20

Guide Number『20』*2 increasing its flash output at approximately 30% comparing to D-180 strobe providing sufficient light to shoot distant subject.

Circular 110° beam coverage with a diffuser Circular 100° beam angle without a diffuser

Patented "T-shape Twin Flash" structure produces wide circular beam angle『100°』even without a diffuser and



increased to『110°』with a diffuser. This ideal circular strobe light distribution supports sophisticated angled lighting with strobe arm without strobe light vignetting caused by misalignment of strobe aiming .

Built-in high-intensity 180 lumen power LED

The Focus Light assists focusing in dark underwater without influence on an image by shutter-linked auto OFF feature*3. The well-established bright LED Focus Light as D-2000 "Type3" has upgraded to 180 lumen to benefit you to use as independent diving flashlight.

Integral pre-flash mode detecting function

Latest Nikon DSLR cameras like D700/D300/D200/D90/D80, alter number of pre-flash between『once』or『twice』depending on shooting condition making total flashes『twice』to『three times』. The D-2000 fully accommodates with this complicated program and automatically identifies number of pre-flash to activate adequate program to support optically connected D700/D300/D200/D90/D80 with proper functioning of「External Auto」/「Manual」as well as precise「"S-TTL" Auto」mode. There is no problem on flashing, exposure accuracy or functional limitation which would be the case with existing strobe supporting single pre-flash only.

D-2000 Type4 back

*1 Compatible with optically connected INON「X1 series」or「Optical Converter TTL」only.
*2 Measurement in Air/ISO100･m, Nominal value
*3 Focus Light may be recorded on an image depending on camera system, connection method and shooting condition.

Wireless TTL compatibility

Same Fundamental Features as D-2000 in Ultra Compact Body World's Smallest, Best Strobe

S-2000

(FULL SIZE)

Marginally downsized with high-performance

64㎜/2.5in. x 83.1㎜/3.3in. x 106.5㎜/4.2in. (W x H x D). Successfully designed world smallest body size as 4AA battery operated underwater strobe*1 with its optimized inner components layout and trimming off unnecessary space. Best suits with a compact digital camera, supporting digital SLR camera with its mobility, incredible compact size even as dual strobe configuration and high performance. The S-2000 totally changes underwater strobe concepts.

Not only compact strobe

The S-2000 is operated by 4x AA batteries to provide fundamental features of strobe though 4x AA batteries operation is hostile to downsizing. The same level of basic performance and durability as existing D-2000 and marvelous high performance is supported with its compact body. Together with powerful and substantial Guide Number 20, the S-2000 benefits you with ultrafast recycle time and remarkable flash capacity thanks to less inner wiring and efficient component parts.
In addition to reliable and super accurate【S-TTL auto mode】flash control,【12 step Manual mode】supports professional lighting. The EV. Controller to make fine adjustment on【S-TTL Auto】and auto-switching function to accommodate with various pre-flash type (2, 3 time pre-flash) digital camera is equipped.

Next generation wireless TTL function

The S-2000 strobe has ultra sensitive slave sensor which is 100 times more sensitive comparing to the slave sensor of existing D-2000 strobe and successfully enables to support wireless【S-TTL Auto】flash control without using an optical cable. Also the sensitivity of the slave sensor dramatically lengthens synch range of Manual flash mode.
Supplied『Mirror Unit』effectively corrects master strobe light to enhance exposure control accuracy. It is easy to use wireless S-TTL Auto shooting simply attached on compatible underwater housing via INON『Shoe Base』or『Grip Base D4』.
Conventional optical cable connection is also supported to provide 2-way connection method to select either of optical cable or wireless depending on shooting circumstances.

Unlimited expandability with optical cable system

The S-2000 strobe is equipped with a connector mount on the front side to receive TTL signal of the strobe. One S-2000 strobe can be linked to maximum two strobes via optical cables and operate them in「S-TTL Auto mode」. This optical cable system benefits you to add S-TTL Auto operating strobe easily by connecting with an optical cable as far as S-TTL control signal is picked up from your camera system. This expandability makes underwater studio with perfect lighting real.

Natural color even with a diffuser

The supplied diffuser does not affects light color, which is popular among professional photographers. The color temperature of the S-2000 changes only 100K(kelvin) by this diffuser. You can have same color tone between macro shooting without diffuser and wide shooting with diffuser to widen strobe beam angle.

*1 As of March 2009 among 4AA battery operated underwater TTL strobe (data by INON INC.)

S-2000 front

S-2000 side

Battery box

Control panel

with a Mirror unit

with an Optical D Cable Type L

with a diffuser

with an Optical D Slave Cable Ⅲ Type L

■Z-240 Type4/D-2000 Type4/S-2000 specifications

Model	INON Z-240 Type4	INON D-2000 Type4	INON S-2000
Strobe Control Mode (*1)	S-TTL Auto / External Auto / TTL Auto / Manual / Manual+TTL Auto (*10)	S-TTL Auto / External Auto / Manual / TTL Auto (*11)	S-TTL Auto / Manual / TTL Auto(*12)
Connection (*1)	Wireless connection / Optical D Cable / Optical Cable / Optical D Slave Cable / Electrical Cable (*14)	Wireless connection /Optical D Cable / Optical Cable / Optical D Slave Cable	Wireless connection / Optical D Cable / Optical D Slave Cable
Guide Number (*2)	24 [without a diffuser] 21 [with supplied -0.5 White Diffuser 2] 14 [with optional -1.5 White Diffuser 2]	20 [without a diffuser] 17 [with optional -0.5 White Diffuser 2] 12 [with optional -1.5 White Diffuser 2]	20 [without a diffuser] 17 [with supplied -0.5 White Diffuser]
Settable flash output (*2)	24(FULL) 21(-0.5) 17(-1) 14(-1.5) 12(-2) 10(-2.5) 8.5(-3) 7.1(-3.5) 6.0(-4) 5.0(-4.5) 4.2(-5) 3.6(-5.5) 3.0(-6) (13 steps in 1/2EV. increments)	20(FULL) 17(-0.5) 14(-1) 12(-1.5) 10(-2) 8.4(-2.5) 7.1(-3) 5.9(-3.5) 5.0(-4) 4.2(-4.5) 3.5(-5) 3.0(-5.5) 2.5(-6) (13 steps in 1/2EV. increments)	20(FULL) 17(-0.5) 14(-1) 12(-1.5) 10(-2) 8.4(-2.5) 7.1(-3) 5.9(-3.5) 5.0(-4) 4.2(-4.5) 3.5(-5) 3.0(-5.5) (12 steps in 1/2EV. increments)
Settable Aperture Value (*3)	F1.4+1/2EV.～F11 (1/2EV.increments, 12steps) F1.4+1/2EV.～F11+1/4EV. (1/4EV.increments, 24steps)	F1.4+1/2EV.～F11 (1/2EV.increments, 12steps) F1.4+1/2EV.～F11+1/4EV. (1/4EV.increments, 24steps)	—
Focus Light (LED) Intensity	180lm(*4)	180lm(*4)	—
Beam Angle	100°×100°circular beam [without a diffuser] 110°×110°circular beam [with a diffuser] 20° [Focus Light(LED)]	100°×100°circular beam [without a diffuser] 110°×110°circular beam [with a diffuser] 20° [Focus Light(LED)]	105°(horizontal)×95°(vertical) [without a diffuser] 110°×110°circular beam [with supplied -0.5 White Diffuser]
Color Temp.	5500K [flash light、without a diffuser] 5400K [flash light、with a diffuser] Approx. 6000K [Focus Light(LED)]	5500K [flash light、without a diffuser] 5400K [flash light、with optional "white" diffuser] Approx. 6000K [Focus Light(LED)]	5500K [flash light、without a diffuser] 5400K [flash light、with supplied -0.5 White Diffuser]
Recycle Time (*5)(*7)	Approx.1.7 seconds minimum: ["eneloop" batteries(*8)] Approx.1.6 seconds minimum: [NiMH batteries(*9)] Approx.2.3 seconds minimum: [Alkaline batteries] Approx.2.5 seconds minimum: [Lithium 1.5V batteries]	Approx.1.8 seconds minimum: ["eneloop" batteries] Approx.1.8 seconds minimum: [NiMH batteries(*9)] Approx.2.3 seconds minimum: [Alkaline batteries] Approx.2.5 seconds minimum: [Lithium 1.5V batteries]	Approx.1.5 seconds minimum: ["eneloop" batteries(*8)] Approx.1.5 seconds minimum: [NiMH batteries(*9)] Approx.1.6 seconds minimum: [Alkaline batteries] Approx.2.1 seconds minimum: [Lithium 1.5V batteries]
Flash Capacity (*5)(*7)	Approx. 240 flashes: ["eneloop" batteries(*8)] Approx. 320 flashes: [NiMH batteries(*9)] Approx. 220 flashes: [Alkaline batteries] Approx. 380 flashes: [Lithium 1.5V batteries]	Approx. 420 flashes: ["eneloop" batteries(*8)] Approx. 520 flashes: [NiMH batteries(*9)] Approx. 400 flashes: [Alkaline batteries] Approx. 660 flashes: [Lithium 1.5V batteries]	Approx. 450 flashes: ["eneloop" batteries(*8)] Approx. 570 flashes: [NiMH batteries(*9)] Approx. 430 flashes: [Alkaline batteries] Approx. 670 flashes: [Lithium 1.5V batteries]
Focus Light (LED) Operable Duration (*6)(*7)	approx. 2hrs 20 min ["eneloop" batteries(*8)] approx. 2hrs 50 min [NiMH batteries(*9)] approx. 2hrs 00 min [Alkaline batteries] approx. 4hrs 00 min [Lithium(1.5V) batteries]	approx. 3hrs 30 min ["eneloop" batteries(*8)] approx. 3hrs 30 min [NiCad batteries(*9)] approx. 2hrs 15 min [Alkaline batteries] approx. 4hrs 15 min [Lithium(1.5V) batteries]	—
Compatible Batteries	AA "eneloop"(HR-3UTG) x 4, or "new generation"NiMH batteries x 4(*8) AA NiMH x 4 [good quality](*9), AA Alkaline x 4, AA Lithium (1.5V) x 4 (Manganese batteries is not compatible)	AA "eneloop"(HR-3UTG) x 4, or "new generation"NiMH batteries x 4(*8) AA NiMH x 4 [good quality](*9), AA Alkaline x 4, AA Lithium (1.5V) x 4 (Manganese batteries is not compatible)	AA "eneloop"(HR-3UTG) x 4, or"new generation"NiMH batteries x 4(*8) AA NiMH x 4 [good quality](*9), AA Alkaline x 4, AA Lithium (1.5V) x 4 *Manganese batteries not compatible
Focus Light Mode	【Single mode】 Shutter linked auto OFF (manually turns ON/turns OFF upon shutter release) 【Continuous mode】 Shutter linked auto OFF (manually turns ON/turns OFF upon shutter release/automatically turns ON after approx. 0.5 second)	【Single mode】 Shutter linked auto OFF (manually turns ON/turns OFF upon shutter release) 【Continuous mode】 Shutter linked auto OFF (manually turns ON/turns OFF upon shutter release/automatically turns ON after approx. 0.5 second)	—
Dimensions	Diameter:99mm/3.9in. Height:122mm/4.8in. Depth:100mm/3.9in. (*Not including Slave Sensor and Arm Base)	Diameter:99mm/3.9in. Height:122mm/4.8in. Depth:100mm/3.9in. (*Not including Slave Sensor and Arm Base)	Diameter:64mm/2.5in. Height:83.1mm/3.3in. Depth:106.5mm/4.2in. (*Including Slave Sensor and Arm Base)
Weight	[air] 583g/20.5oz (without batteries) [underwater] Approx. 77g/2.7oz (with 4 "eneloop" batteries)	[air] 544g/19.2oz (without batteries) [underwater] Approx. 47g/1.7oz (with 4 "eneloop" batteries)	[air] 295g/10.4oz (without batteries) [underwater] Approx. 69g/2.4oz (with 4 "eneloop" batteries)
Working Temperature	0℃～30℃/32°F～86°F [water temperature]	0℃～30℃/32°F～86°F [water temperature]	0℃～30℃/32°F～86°F [water temperature]
Storage Temperature	0℃～30℃/32°F～86°F [air temperature] +50℃/122°F (temporary allowable temperature limit)	0℃～35℃/32°F～86°F [air temperature] +50℃/122°F (temporary allowable temperature limit)	0℃～35℃/32°F～95°F [air temperature] +50℃/122°F (temporary allowable temperature limit)
Depth Rating	100m/328ft	100m/328ft	100m/328ft
Body Material/Color	Polycarbonate resin / gray	Polycarbonate resin / red	Polycarbonate resin / red
Package contents	Synch Connector Cap, Slave Sensor Cap, -0.5 White Diffuser 2 (TTL/Manual), Red Filter LE, W40° Filter LE, Light Filter Sticker Red, AC Circuit Switch Sticker(Film/Digital), Electrical Connection TTL Sticker, Spare O-ring (Battery Box, Synch Connector), INON Grease, TTL Insulation Plate x 2	Magnet, Magnet Screw, Magnet Screw Tighter, Spare O-ring (Battery Box), INON Grease, Light Filter Sticker Red	-0.5 White Diffuser, Magnet, Magnet Screw, Spare O-ring (Battery Box), INON Grease, Wireless Connection Kit

*1 Flash modes/connection method is vary depending on camera system. Also flash mode is vary depending on connection method.

*2 Measurement in Air/ISO100･m, Nominal value

*3 Usable for External Auto mode. At ISO100 equivalent film sensitivity.

*4 Nominal value by LED manufacture.

*5 Measured with FULL strobe output at 30-seconds intervals with both Focus Light(Z-240、D-2000) and Advanced Cancel Circuit OFF, at 25℃/77°F giving 10 minutes cooling period every 50 flashes using test batteries listed in right.

*6 Operable duration is accumulated time of continuous mode with 5 minute cooling OFF every 30 minutes(Z-240) / 60 minutes(D-2000) at 25℃/77°F with test batteries *Cooling OFF time is excluded.

*7 Recycle Time / Flash Capacity / Focus Light operable duration(Z-240、D-2000) based on INON test data. Actual values may vary depending on battery manufacturer, battery type and age.

*8 Including listed "new generation" NiMH batteries ("eneloop" type) having less self-discharging and heat generation characteristic comparing to "conventional" or "high-capacity" NiMH and confirmed compatibility by INON INC.

*9 Some "conventional" or "high-capacity" NiMH rechargeable batteries have significant self-discharge and heat-generating characteristic resulting difficulty to keep their performance during usage. We recommend to use recommended batterie.

*10 Usable when connecting to TTL Auto compatible camera/camera system via an electrical cable.

*11 Usable when connecting to INON「X1 series」or「Optical Converter TTL」using『Optical Cable Connection』, or connecting to TTL operation INON strobe(*13) by『Optical D Slave Cable Connection』.

*12 Only compatible when connecting to TTL operation INON strobe (*13) by『Optical D Slave Cable Connection』.

*13 S-2000, Z-240, D-2000, D-2000S, D-2000W, D-2000Wn

*14 Compatible cord : 5-pin Sync Cord/N (Sea&Sea)

Please visit INON web site for updated / detailed information of compatible function and operational limitations for different camera/camera system.

Test battery

"eneloop" battery	SANYO "eneloop", HR-3UTG, 1.2V, Min.1,900mAh, Typ.2,000mAh
NiMH battery	SANYO Twicell 2700 Series, HR3UG, 1.2V, Min2,500mAh
Alkaline battery	Z-240/D-2000 : Maxcell ALKALINE ACE, LR6(K), 1.5V S-2000 : Maxcell ALKALINE ACE "voltage", LR6(T), 1.5V
Lithium battery (1.5V)	FUJIFILM/Energizer LITHIUM, FR6, 1.5V

New generation NiMH batteries

SANYO Electric Co., Ltd	Model name : "eneloop"【recommended】 Model code : HR-3UTG
SONY Corporation	Model name : Cycle Energy Blue Model code : NH-AA-2BKA, NH-AA-4BKA
Panasonic Corporation	Model name : Rechargeable NiMH(AA) Model code : HHR-3MPS
Maha Energy Corporation	Model name : IMEDION Model code : MHRAAI4
GP Batteries International Limited	Model name : ReCyko+ Model code : 210AAHCBE
ANSMANN AG	Model name : maxE Model code : 5030991, 5030992, 5035052
Electrochem Automation Inc.	Model name : NEXcell energyON Model code : n/a(AA 2000mAh)

Optical D Cable Type L/Cap Set

INON「Optical D Cable Type L/Cap Set」is a key component to reliably trigger an external strobe in synch with built-in flash light and each different model is designed specifically to suit to each camera model to attach directly on built-in diffuser panel of genuine underwater housing or a Mount Base.「Optical D Cable Type L」consists of optical fiber to provide more reliable and faultless external strobe control comparing to conventional wireless slave connection especially in severe condition like under surface or backlit circumstances.
INON「Clear Photo System」effectively suppress transparent underwater housing drawbacks like backscatter, ghost or flare caused by camera's built-in flash to obtain more clear image.
「Optical D Cable SS Type L/Cap Set」consists of shorter「Optical D Cable SS」(free length: approx. 24cm/9in.) which is suitable when using INON「Shoe Base Set」to attach an external strobe on an underwater housing.

Optical D Cable SS Type L

■Free length : approx. 24㎝ /9in.

Optical D Cable Type L

■Free length : approx. 43㎝ /17in.

Optical D Cable L Type L

■Free length : approx. 68㎝ /27in.

Optical cable products to connect Z-240/ D-2000/S-2000 strobe and compatible camera/camera system. INON optical cable products use multicore optical fiber cable made from more than 200 single fibers providing super durability and rigid reliability with minimum bending curvature 2mm which is quite different from single core optical fiber cable. Three different length products are available to suit to your camera system;「Optical D Cable Type L」(free length approx. 43cm/17in.),「Optical D Cable L Type L」(free length approx. 68cm/27in.),「Optical D Cable SS Type L」(free length approx. 24cm/9in.).

Optical D Slave Cable Ⅱ Type L

■Compatible strobe : Z-240 / D-2000 series / D-180 series / Z-220 series

Optical D Slave Cable Ⅲ Type L

■Compatible strobe : S-2000

An optical cable product to connect two INON strobes. A light receiving part is attached on front surface of a main strobe which is triggered by a camera signal to transmit main strobe's flash light to a sub strobe via optical fiber for activation supporting reliable operation and free from synch problem even under severe condition like in bright area. The Optical D Slave Cable is useful to expand your lighting system even camera's optical connector is limited. INON offers two Optical D Slave Cables to suit to different main strobe.

Strobe Cover D/Z

A strobe cover made from neoprene as same as wet-suits for underwater use. This cover protects strobe from accidental damage during diving as well as transportation by its cushioned material. Two slits on both sides are designed for effective radiation.

Optical D Cable Type L/Double Hole Rubber Bush Set

This fiber optical cable set comes with a rubber bush to plug a cable to Olympus/Sea&Sea optical cable connector.

Wireless Connection Kit

Optional accessory kit for「wireless connection」. The kit includes a mirror unit for Z-240/ D-2000 and camera mirrors for camera system to use S-TTL Auto.

-0.5 Blue Diffuser 2 (External Auto) (*above image)

for Z-240/D-2000/D-2000W/ D-2000Wn/D-180/D-180S

-0.5 White Diffuser 2 (External Auto) (*above image)

-1.5 White Diffuser 2 (External Auto)

for Z-240/D-2000/D-2000W/ D-2000Wn/D-180/D-180S

-0.5 Blue Diffuser 2 (TTL/Manual) (*above image)

for Z-240/D-2000/D-2000S/ D-2000W/D-2000Wn/Z-220F/ Z-220S/Z-220

-0.5 White Diffuser 2 (TTL/Manual) (*above image)

-1.5 White Diffuser 2 (TTL/Manual)

for Z-240/D-2000/D-2000S/ D-2000W/D-2000Wn/Z-220F/ Z-220S/Z-220

* INON Diffuser System offers two types for different flash mode; Diffuser (External Auto) is for all flash modes; External Auto, S-TTL Auto, TTL Auto, Manual +TTL and Manual, while Diffuser(TTL/Manual) is for S-TTL Auto, TTL Auto, Manual + TTL and Manual mode.
* Z-220 target laser switch is operable only with Diffuser (TTL/Manual).

Multifunction Diffuser System

Circular Beam Angle 110°

INON Diffuser widen strobe beam angle from 100° circular to 110°. Diffuser is must item for wide shot or to cover variation of strobe positioning even with standard lens.

2 types of flash adjustment

Flash output can be adjusted in 2 steps with different diffuser. -0.5 or -1.5 stop reduction can be obtained.
In S-TTL Auto mode operaton with dual strobe configuration, shadow can be controlled by either attaching diffuser only one side or using different diffuser for each side.
Diffuser soften light from strobe, which helps to acquire natural image. The -0.5 Diffuser is recommended to attach all time except full flash amount is necessary.

Color temperature of White Diffuser is 5400K same as sunlight

White Diffuser adjusts flash output and widen beam angle with minimal color temperature change. The color temperature of strobe beam through White Diffuser is 5400K and designed to have same color temperature of sunlight.
*All INON strobe are designed to produce color temperature 5500K flash light without a diffuser as same as sunlight to enhance natural color image.

Blue Diffuser prevents yellowish/reddish characteristic of digital camera

Blue Diffuser is newly developed to take a subject with natural color. Blue Diffuser suppress particular color compensation characteristic to be yellowish/reddish by mainly Canon digital camera to highlight healthy human skin.

Fly-eye filter effectively diffusing light Red filter for wild life observation

INON Diffuser 2 comes with two filters; a hollow diffusing filter「W40° Filter LE」made from two laminated high transmittance optical grade acrylic fly-eye lens to extend Focus Light coverage up to 40° with less light attenuation, and「Red Filter LE」not to stimulate light-sensitive subject for observation.

with the W40° Filter LE

with the Red Filter LE

W50° Filter LE

Optional filter to effectively increase Focus Light coverage to 50° by its hollow design made from two laminated fly-eye lens.

for S-2000 only

-0.5 Blue Diffuser for S-2000

A diffuser to suppress yellowish/reddish color compensation characteristic mainly by Canon compact digital camera when shooting macro subject.

With Blue Diffuser
Sea lemon has natural and clear color.
Canon IXY400 + D-2000 + -0.5 Blue Diffuser

Without diffuser
The color of the sea lemon gets yellow-red and less clear in entire image.
Canon IXY400 + D-2000 (No diffuser)

High-Precision Machined Aluminum Lightweight Strobe Arm
ARM-Ⅱ SYSTEM

Arm XS Body
■Effective length : 75mm/3.0in.
■Weight : 48g/1.7oz(Underwater : 29g/1.0oz)

Arm SS Body
■Effective length : 120mm/4.7in.
■Weight : 60g/2.1oz(Underwater : 40g/1.4oz)

Arm S Body
■Effective length : 150mm/5.9in.
■Weight : 70g/2.5oz (Underwater : 44g/1.6oz)

Arm M Body
■Effective length : 200mm/7.9in.
■Weight : 85g/3.0oz(Underwater : 52g/1.8oz)

INON Arm series is machined lightweight aluminum alloy and processed together with "arm ball". This processing system gives INON Arm high-precision, lightweight and extraordinary strength. Unlike molding or casting, this manufacturing system obtains accuracy of "0.01mm" providing very smooth fitting between arm ball and clamp. The diameter of arm ball is 24mm/0.9in., equipping O-ring providing firm and reliable clamping but you never feel any stress when you adjust arm position by loosening a clamp. INON Arm O-ring is made of ozone-proof and weather-proof silicon rubber.

Arm L Body
■Effective length : 320mm/12.6in.
■Weight : 120g/4.2oz(Underwater : 74g/2.6oz)

YS Arm M Body
■Effective length : 203mm/8.0in.
■Weight : 80g/2.8oz(Underwater : 49g/1.7oz)

YS Arm MS Body
■Effective length : 166mm/6.5in.
■Weight : 70g/2.5oz(Underwater : 43g/1.5oz)

Multi Direct Base Ⅱ
Multi Direct Base Ⅱ Long

Firmly attached by two cap bolts. Ten mounting holes to support various manufacturers arm system.

■Effective length : 40mm/1.6in., Long : 76mm/3.0in.
■Weight (air/underwater) : 36g(1.3oz) / 22g(0.8oz), Long : 46g(1.6oz) / 28g(1.0oz)
■Compatible system : X-2, X1-NZ, X1-LZ, System Base Ⅱ system, Grip Base DⅡ/DⅢ/D4, Port Arm D, Anthis, Kenko, Sea&Sea
■Accessories : M6 cap bolt x 2, M5 cap bolt x 2, M6 flat washer x 2, M5 flat washer x 2, Allen wrench

Arm Float S

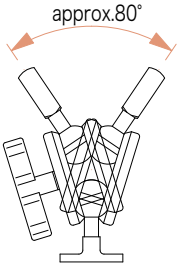
Underwater ,"Arm Float S" gives aluminum alloy arm buoyancy of 70g and also helps to grasp. It is made of two pieces of foam rigid plastic and screwed together on an arm in between there.

■Weight : 45g/1.6oz (1 set)
■Underwater buoyancy : approx.70g/2.5oz
■Compatible arm : Arm S Body / M Body / L Body (two "Arm Float S" can be attached on Arm L Body), YS Arm MS Body/M Body

Clamp

The Clamp is made of machined lightweight aluminum alloy and weighs only 55g/1.9oz. The thumbscrew type gives easy clamping and unclamping. Not only allowing 360 degrees free oscillating movement between attached arm system, also gives approx. 80 degrees movement along an extended line of attached arm.

■Weight : 55g/1.9oz (underwater : 35g/1.2oz)



SB Joint Ⅱ

A joint part to attach Nikon SB series on the edge of YS Adapter or YS Arm.

■Effective length : 22mm/0.9in.
■Weight : 105g/3.7oz (underwater:61g/2.2oz)
■Compatible strobe : Nikon SB103, SB105

*Discontinued product.

Z Adapter

Strobe adapter for INON Z-240, D-2000 strobe series, S-2000, Z-220 strobe series and D-180 strobe series

■Effective length : 58mm/2.3in.
■Weight : 45g/1.6oz (underwater 29g/1.0oz)
■Compatible strobe : INON Z-240, D-2000, S-2000 D-2000S, D-2000W, D-2000Wn, D-180, D-180S, Z-220F, Z-220S, Z-220

SB Adapter

Adapter for Nikon SB strobe series

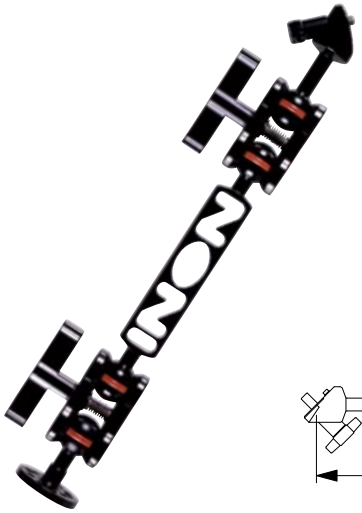
■Effective length : 45mm/1.8in.
■Weight : 40g/1.4oz (underwater : 31g/1.1oz)
■Compatible strobe : Nikon SB103, SB105

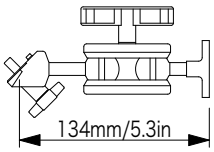
YS Adapter

Adapter for INON Z-22 Strobe, Sea&Sea YS strobe series

■Effective length : 48mm/1.9in.
■Weight : 40g/1.4oz (underwater 22g/0.8oz)
■Compatible strobe : INON Z-22, Sea&Sea YS series

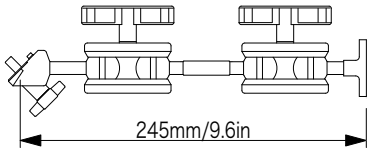
ARM-II SET





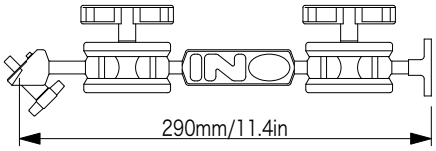
Direct Arm Z Set **Direct Arm Z Set Multi D.B. Long**
Direct Arm SB Set **Direct Arm SB Set Multi D.B. Long**
Direct Arm YS Set **Direct Arm YS Set Multi D.B. Long**

■Effective length : 134mm/5.3in.(Z), 119mm/4.7in.(SB), 124mm/4.9in.(YS) *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 140g/4.9oz (Z), 135g/4.8oz (SB), 135g/4.8oz (YS) *Multi D.B. has additional 6g/0.2oz
■Set includes : Z Adapter (SB Adapter, YS Adapter), Multi Direct Base Ⅱ (Long), Clamp



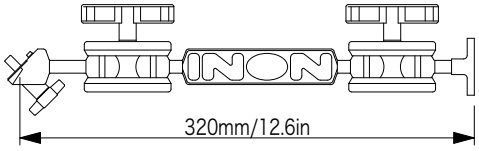
Arm XS Set Z **Arm XS Set Z Multi D.B. Long**
Arm XS Set SB **Arm XS Set SB Multi D.B. Long**
Arm XS Set YS **Arm XS Set YS Multi D.B. Long**

■Effective length : 245mm/9.6in.(Z), 230mm/9.1in.(SB), 235mm/9.3in.(YS) *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 243g/8.6oz(Z), 238g/8.4oz(SB), 238g/8.4oz(YS) *Multi D.B. Long has additional 6g/0.2oz
■Set includes : Z Adapter (SB Adapter, YS Adapter), Arm XS Body, Multi Direct BaseⅡ(Long), Clamp x2



Arm SS Set Z **Arm SS Set Z Multi D.B. Long**
Arm SS Set SB **Arm SS Set SB Multi D.B. Long**
Arm SS Set YS **Arm SS Set YS Multi D.B. Long**

■Effective length : 290mm/11.4in.(Z), 275mm/10.8in.(SB), 280mm/11.0in.(YS) *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 255g/9.0oz(Z), 250g/8.8oz(SB), 250g/8.8oz (YS) *Multi D.B. Long has additional 6g/0.2oz
■Set includes : Z Adapter (SB Adapter, YS Adapter), Arm SS Body, Multi Direct BaseⅡ(Long), Clamp x2

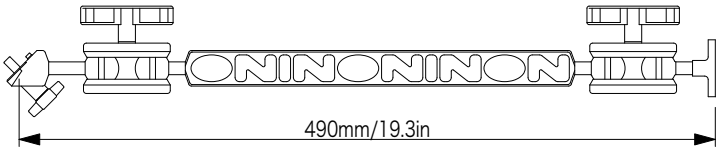


Arm S Set Z **Arm S Set Z Multi D.B. Long**
Arm S Set SB **Arm S Set SB Multi D.B. Long**
Arm S Set YS **Arm S Set YS Multi D.B. Long**

■Effective length : 320mm/12.6in.(Z), 305mm/12.0in.(SB), 310mm/12.2in.(YS) *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 265g/9.3oz(Z), 260g/9.2oz(SB), 260g/9.2oz(YS) *Multi D.B. Long has additional 6g/0.2oz
■Set includes : Z Adapter (SB Adapter, YS Adapter), Arm S Body,Multi Direct BaseⅡ(Long), Clamp x2
*One Arm Float S (sold separately) can be attached.

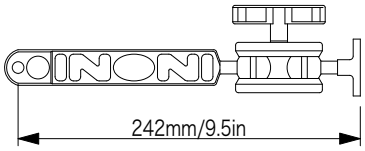
Arm M Set Z **Arm M Set Z Multi D.B. Long**
Arm M Set SB **Arm M Set SB Multi D.B. Long**
Arm M Set YS **Arm M Set YS Multi D.B. Long**

■Effective length : 370mm/14.6in.(Z), 355mm/14.0in.(SB), 360mm/14.2in.(YS) *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 280g/9.9oz(Z), 275g/9.7oz(SB), 275g/9.7oz(YS) *Multi D.B. Long has additional 6g/0.2oz
■Set includes : Z Adapter (SB Adapter, YS Adapter), Arm M Body, Multi Direct BaseⅡ(Long), Clamp x2
*One Arm Float S (sold separately) can be attached.



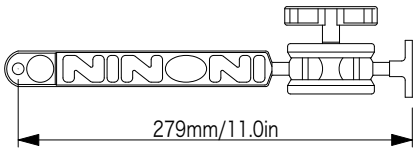
Arm L Set Z **Arm L Set Z Multi D.B. Long**
Arm L Set SB **Arm L Set SB Multi D.B. Long**
Arm L Set YS **Arm L Set YS Multi D.B. Long**

■Effective length : 490mm/19.3in.(Z), 475mm/18.7in.(SB), 480mm/18.9in.(YS) *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 315g/11.1oz(Z), 310g/10.9oz(SB), 310g/10.9oz(YS) *Multi D.B. Long has additional 6g/0.2oz
■Set includes : Z Adapter (SB Adapter, YS Adapter), Arm L Body, Multi Direct BaseⅡ(Long), Clamp x2
*Maximum two Arm Float S (sold separately) can be attached.



YS Arm MS Set **YS Arm MS Set Multi D.B. Long**

■Effective length : 242mm/9.5in. *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 165g/5.8oz *Multi D.B. Long has additional 6g/0.2oz
■Set includes : YS Arm MS Body, Multi Direct BaseⅡ(Long), Clamp
*One Arm Float S (sold separately) can be attached.



YS Arm M Set **YS Arm M Set Multi D.B. Long**

■Effective length : 279mm/11.0in. *Multi D.B. Long has additional 36mm/1.4in.
■Weight : 175g/6.2oz *Multi D.B. Long has additional 6g/0.2oz
■Set includes : YS Arm M Body, Multi Direct BaseⅡ(Long), Clamp
*One Arm Float S (sold separately) can be attached.

Set-up Example

CANON IXY DIGITAL 3000IS + WP-DC27
AD Mountbase DC19/27
Gripbase D4
D holder
Direct Arm Z Set x2
Float Arm M x2
Clamp x2
AD Lens Holder x2
S-2000 Strobe x2

X-2 for EOS30D Housing
Holder II Set
Arm SS Set Z
Arm S Set Z
M67 Lens Holder S
Z-240 Strobe x2
-0.5 Blue Diffuser 2 (External Auto) x2

Tired with Heavy Underwater Shooting Equipments?
Controlling Underwater Weight
FLOAT ARM SYSTEM

Float Arm S
■Buoyancy : 75g/2.6oz ■Effective length : 150mm/5.9in.
■Outer diameter : 52mm/2.0in. ■Weight(air) : 142g/5.0oz

Float Arm M
■Buoyancy : 135g/4.8oz ■Effective length : 200mm/7.9in.
■Outer diameter : 52mm/2.0in. ■Weight(air) : 181g/6.4oz

Float Arm ML
■Buoyancy : 210g/7.4oz ■Effective length : 260mm/10.2in.
■Outer diameter : 52mm/2.0in. ■Weight(air) : 235g/8.3oz

Mega Float Arm S
■Buoyancy : 390g/13.8oz ■Effective length : 150mm/5.9in.
■Outer diameter : 97mm/3.8in. ■Weight(air) : 219g/7.7oz

Mega Float Arm M
■Buoyancy : 650g/22.9oz ■Effective length : 200mm/7.9in.
■Outer diameter : 97mm/3.8in. ■Weight(air) : 295g/10.4oz

■ABS resin/corrosion-resistant aluminum alloy/rubber etc.
■Depth rating : 70m/230feet

Great buoyancy

The Float Arm uses weather-resistant ABS material for its component arm body to lighten total weight creating extraordinary buoyancy comparing to existing solid arm type float system together with its hollow arm body design. The hollow arm body enables not only helping weight trimming but also provide extra buoyancy.

Wide variety of Float Arm

Float Arm system have line-up total 5 different type;「Float Arm」of standard φ52mm/2in. with three different length and「Mega Float Arm」of φ97mm/3.8in. with two different length. New INON Float Arm system including existing「Arm Float S」provides perfect solution to obtain desired underwater weight of your camera system depending on shooting style, conditions.

Secure and stable gripping

The Float Arm is fully compatible with existing INON Arm Ⅱ system with its high-precision machined aluminum alloy ball joint providing perfect balance between stable clamping and stress-free handling thanks to ozone-proof and weather-proof silicon rubber O-ring. Your INON Arm Ⅱ system is fully compatible with new Float Arm and you can add INON lens holder on the Float Arm.

INON commits to control underwater weight

We, INON will announce underwater weight not only housing/strobe but other accessories as much as we can to support people to consider selecting INON products knowing total underwater weight before purchasing them. The table on the next page shows underwater weight of INON products.

■Useful for lens exchange/carry

INON Float Arm can have maximum two lens holders to assist you to bring attachment lenses underwater and support quick and stress-free lens exchange.

M67 Lens Holder for Float Arm

An optional part to attach INON M67 mount series attachment lens on the Float Arm.

AD Lens Holder for Float Arm

An optional part to attach INON AD/28AD mount series attachment lens on the Float Arm.

Underwater weight (estimate value in fresh water, calculated based on freshwater density = 1)

Product	U/W weight
Arm S Float	-70 g/-2.5 oz
Float Arm S	-75 g/-2.6 oz
Float Arm M	-135 g/-4.8 oz
Float Arm ML	-210 g/-7.4 oz
Mega Float Arm S	-390 g/-13.8 oz
Mega Float Arm M	-650 g/-22.9 oz
Arm XS Body	29 g/1.0 oz
Arm SS Body	40 g/1.4 oz
Arm S Body	44 g/1.6 oz
Arm M Body	52 g/1.8 oz
Arm L Body	74 g/2.6 oz
YS Arm MS	43 g/1.5 oz
YS Arm M	49 g/1.7 oz
Multi Direct Base Ⅱ	22 g/0.8 oz
Multi Direct Base Ⅱ Long	28 g/1.0 oz
Clamp	35 g/1.2 oz
Z Adapter	29 g/1.0 oz
Z Adapter (with thumb knob screws)	37 g/1.3 oz
YS Adapter	22 g/0.8 oz
YS Adapter Fixing Bolt	8 g/0.3 oz
SB Adapter	31 g/1.1 oz
SB Joint Ⅱ	61 g/2.2 oz
Direct Arm Z Set	86 g/3.0 oz
Direct Arm YS Set	79 g/2.8 oz
Direct Arm SB Set	88 g/3.1 oz
Direct Arm Z Set Multi D.B. Long	92 g/3.2 oz
Direct Arm YS Set Multi D.B. Long	85 g/3.0 oz
Direct Arm SB Set Multi D.B. Long	94 g/3.3 oz
Arm XS Set Z	150 g/5.3 oz
Arm XS Set YS	143 g/5.0 oz
Arm XS Set SB	152 g/5.4 oz
Arm XS Set Z Multi D.B. Long	156 g/5.5 oz
Arm XS Set YS Multi D.B. Long	149 g/5.3 oz
Arm XS Set SB Multi D.B. Long	158 g/5.6 oz
Arm SS Set Z	161 g/5.7 oz
Arm SS Set YS	154 g/5.4 oz
Arm SS Set SB	163 g/5.7 oz
Arm SS Set Z Multi D.B. Long	167 g/5.9 oz
Arm SS Set YS Multi D.B. Long	160 g/5.6 oz
Arm SS Set SB Multi D.B. Long	169 g/6.0 oz
Arm S Set Z	165 g/5.8 oz
Arm S Set YS	158 g/5.6 oz
Arm S Set SB	167 g/5.9 oz
Arm S Set Z Multi D.B. Long	171 g/6.0 oz
Arm S Set YS Multi D.B. Long	164 g/5.8 oz
Arm S Set SB Multi D.B. Long	173 g/6.1 oz
Arm M Set Z	173 g/6.1 oz
Arm M Set YS	166 g/5.9 oz
Arm M Set SB	175 g/6.2 oz
Arm M Set Z Multi D.B. Long	179 g/6.3 oz
Arm M Set YS Multi D.B. Long	172 g/6.1 oz
Arm M Set SB Multi D.B. Long	181 g/6.4 oz
Arm L Set Z	195 g/6.9 oz
Arm L Set YS	188 g/6.6 oz

Product	U/W weight
Arm L Set SB	197 g/6.9 oz
Arm L Set Z Multi D.B. Long	201 g/7.1 oz
Arm L Set YS Multi D.B. Long	194 g/6.8 oz
Arm L Set SB Multi D.B. Long	203 g/7.2 oz
YS Arm MS Set	100 g/3.5 oz
YS Arm MS Set Multi D.B. Long	106 g/3.7 oz
YS Arm M Set	106 g/3.7 oz
YS Arm M Set Multi D.B. Long	112 g/4.0 oz
Grip Base D Ⅲ with Rubber Grip D	117 g/4.1 oz
Grip Base D4	142 g/5.0 oz
D Holder	65 g/2.3 oz
D Holder Extension Bar	34 g/1.2 oz
Main Base Ⅱ	74 g/2.6 oz
Holder Ⅱ (below the surface)	-8 g/0.3 oz
W Base Ⅱ	32 g/1.1 oz
Grip Bar Ⅲ Set	130 g/4.6 oz
Holder Ⅱ Grip Set (below the surface)	196 g/6.9 oz
Holder Ⅱ Set (below the surface)	66 g/2.3 oz
Shue Base	20 g/0.7 oz
Z Joint	23 g/0.8 oz
LE250	120 g/4.2 oz
Single Light Holer LE	31 g/1.1 oz
Video Base V1	119 g/4.2 oz
D Base	37-52g/1.3-1.8oz
Port Arm D	82 g/2.9 oz
Lens Arm	32 g/1.1 oz
M67 Lens Arm	35 g/1.2 oz
UCL-330 Close-up Lens	75 g/2.6 oz
UCL-165M67 Close-up Lens	73 g/2.6 oz
UWL-100 Wide Conversion Lens	370 g/13.1 oz
UWL-100 (with Dome Lens Unit)	587 g/20.7 oz
M67 Lens Holder S	31 g/1.1 oz
M67 Lens Holder W	60 g/2.1 oz
M67 Mount Base	55-95g/1.9-3.4oz
UCL-165AD Close-up Lens	35 g/1.2 oz
UWL-105AD Wide Conversion Lens	142 g/5.0 oz
UFL-165AD Fish-eye Conversion Lens	85 g/3.0 oz
UWL-100 28AD Wide Conversion Lens	190 g/6.7 oz
UWL-100 28AD(with Dome Lens Unit)	480 g/16.9 oz
AD Lens Holder (single caddy mounted)	12 g/0.4 oz
AD Lens Holder (double caddy mounted)	18 g/0.6 oz
AD, 28AD, 28AD/AD Mount Base	60-90g/2.1-3.2oz
Z-240 Strobe (TYPE-4) incl. "eneloop"	77 g/2.7 oz
D-2000 Strobe (TYPE-4) incl. "eneloop"	47 g/1.7 oz
S-2000 Strobe incl. "eneloop"	69 g/2.4 oz
-0.5/-1.5 Diffuser 2 (TTL/Manual)	5 g/0.2 oz
-0.5/-1.5 Diffuser 2 (External Auto)	10 g/0.4 oz
X-2 for EOS50D/40D PF2 AT-X107DX FISHEYE Set *	490 g/17.3 oz
X-2 for EOS50D/40D PF2 EF-S18-55mm Set *	260 g/9.2 oz
X-2 for EOS50D/40D PF2 EF100mm Macro Set *	490 g/17.3 oz
X-2 for EOS50D/40D PF2 EF-S60mm Macro USM Set *	420 g/14.8 oz
X-2 for EOS50D/40D FW (weight difference from PF2 version)	0 g/0 oz
X-2 for EOS50D/40D 45°VF (weight difference from PF2 version)	+120 g/+4.2 oz
X-2 for EOS50D/40D STVF (weight difference from PF2 version)	+170 g/+6.0 oz

*Heaviest combination including camera/lens/port/focus･zoom gear.
「PF2」: X-2 Housing with Pick-up Finder 2 unit, 「FW」: X-2 Housing with Finder Window unit, 「VF」: 45°/Straight Viewfinder unit

Securely holds camera and strobe
Universal and expandable arm base
BASE SYSTEM

A base tray with arm function for compact digital camera housing to attach an external strobe or other lighting device. Any INON strobe can be directly attached to set up compact and simple single strobe system. Compatible optional parts and wide variety of INON Arm Ⅱ system further enables you to create flexible camera system to suits to your shooting style.

Shoe Base Set
(Shoe Base + Z Joint)

Just attach the "Shoe Base Set" on an underwater housing or INON Mount Base equipped with an accessory shoe enabling you to shoot with an external strobe or other lighting device in compact and handy system.

■Hook Plate
Easy installation with the hook plate which has "nails" to grasp marine case accssory shoe to prevent accidental separation.

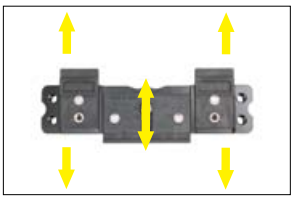
■Move back and forth
The Z Joint can move back and forth to accommodate with different strobe distance.

■Rotate 360°
The Shoe Base can rotate 360°. You can move strobe not only up-and-down but also sideways to adjust strobe aiming.

Grip Base D4 Set
(Grip Base D4 + Z Joint)

Newly developed "SPS (Slide Plate System)" is equipped to provide direct installation on more than 100 different compact digital camera housings (Patent P.). The Grip Base D4 Set offers great expandability from standard single strobe set to advanced multiple lighting set.

■No loose ! No rattle !
To-and-fro sliding main plate and two sub plates firmly hold leg part of an underwater housing and when attaching on a Mount Base to use an attachment lens, the Grip Base D4 is attached via two M6 screws. The Grip Base D4 helps you to focus on shooting without worrying loose or backlash.



■Wireless strobe shooting
It is easy to start external strobe shooting simply by attaching an INON strobe directly on the Grip Base D4 Set. Powerful and highly accurate wireless S-TTL Auto exposure control of「Z-240 Type4」「D-2000 Type4」and「S-2000」strobe delivers vivid underwater world.

Wide variety of optional parts for unlimited expandability

INON base system carries broad range of optional parts to extend a strobe arm or to add secondary strobe or other lighting device. You can easily expand your system from basic set to high-end system.

Single Light Holder LE
Holds single LE series LED flashlight in combination with the「Shoe Base」or「Grip Base D4」

Z Joint
Directly holds compatible INON strobe on the top of the Grip Base D4 or Shoe Base. The「Grip Base D4 Set」and「Shoe Base Set」includes the Z Joint as a package.

D Holder Extension Bar
Extends an arm of the Grip Base D4 to attach the「M67 Lens Holder S」or「AD Lens Holder」.

Shoe Base Adapter D4
An adapter to attach the Shoe Base on the top of the Grip Base D4 to have lighting source from various angle.

Z Adapter
An adapter attached on the angled edge to have ball joint vertically or horizontally.

Multi Direct Base Ⅱ
Multi Direct Base Ⅱ Long
Adds a ball joint on the top of the Grip Base D4 to attach INON Arm II system or Float Arm.

Shoe Base
A tiny arm base to attach a strobe or torch on the accessory shoe of an underwater housing. The「Z joint」or「Single Light Holder LE」can be attached.

D Holder
An additional grip on the Grip Base D4 to make multiple lighting system by attaching strobes or flashlights on both ends. An additional grip on the Grip Base D4 to make multiple lighting system by attaching strobes or flashlights on both ends.

Grip Base D4
A multi-functional base tray with a grip. Various optional products can be attached on its top edge.

Set-up Example

Panasonic LUMIX ZX3 + DMW-MCZX3
M67 Lens Adapter Base MCZX3/ZX1
UCL-330 Close-up Lens
S-2000 Strobe (wireless connection)
Shoe Base Set

Canon PowerShot G11 + WP-DC34
S-2000 Strobe (wireless connection)
Grip base D4 Set

Olympus E-PL1
Olympus PT-EP01
Optical D Cable Type L/Double Hole Rubber Bush Set
Grip Base D4 Set
Shoe Base
S-2000 Strobe
LE240
Single Light Holder LE

Canon PowerShot S90
Canon WP-DC35
UWL-100 28AD Wide Conversion Lens
Lens Hood for UWL-100 28AD
UCL-165AD Close-up Lens x2
D-2000 Strobe x2
-0.5 Blue Diffuser 2 (External Auto) x2
Optical D Cable Type L/Cap W51 Set
Optical D Cable Type L
Grip Base D4
D Holder
Z Adapter x4
Clamp x4
Float Arm M x2
AD Lens Holder for Float Arm x2
AD Mount Converter for UCL-165AD

Canon EOS 50D + Tokina AT-X107DX
X-2 for EOS50D/40D Housing
Dome Port 2 + Shade 2 Set
Extension Ring S
Zoom Gear AT-X107
Optical D Cable L Type L x2
Holder II Grip Set
Direct Arm Z Set x2
Float Arm ML x2
Clamp x2
Z-240 Strobe x2
-0.5 Blue Diffuser 2 (External Auto) x2

INON

http://www.inon.jp

INON WEB ▶ http://www.inon.jp

For product inquiry
E-mail query@inon.co.jp

INON INC,.
2-18-9 Dai, Kamakura, Kanagawa, Japan 247-0061

2011.2